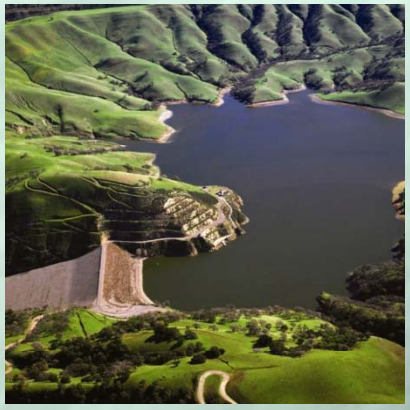

Evaluating Resource Management Strategies For the California Water Plan

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California Water Plan

Rich Juricich,
California Department of Water Resources

Acknowledgements

- Evan Bloom, RAND Corporation
- Dr. Andy Draper, MWH
- Dr. David Groves, RAND Corporation
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- Edmundo Molina-Perez, RAND Corporation
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- Dr. Mohammad Rayej, DWR
- Dr. David Yates, National Center for Atmospheric Research

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State's Blueprint for
Integrated Water Management & Sustainability

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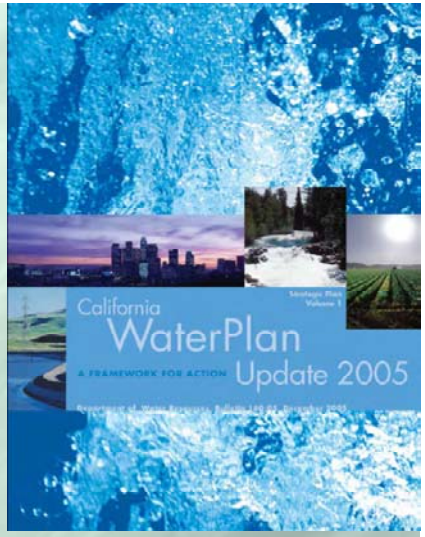
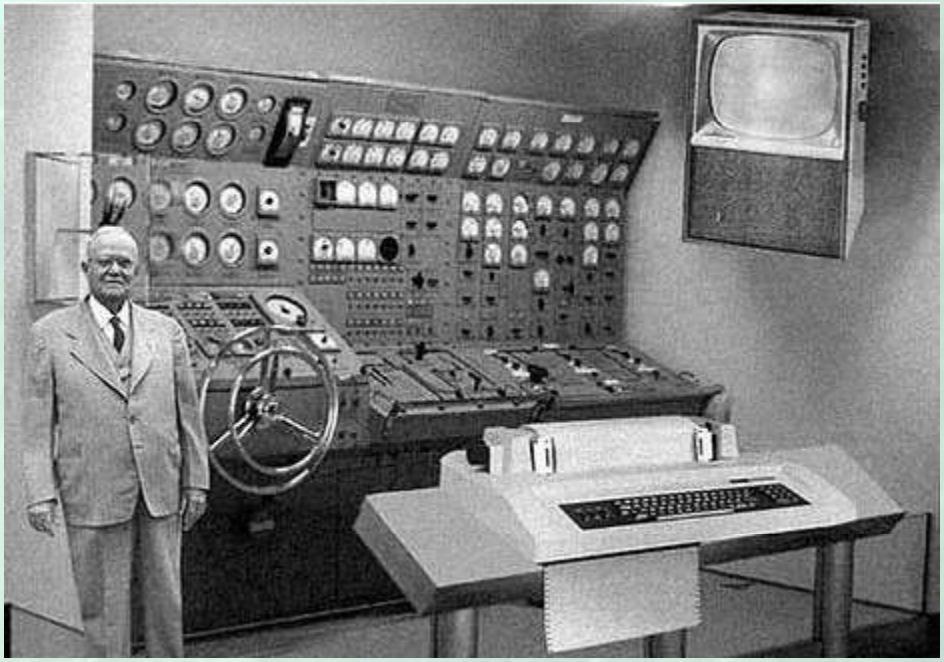
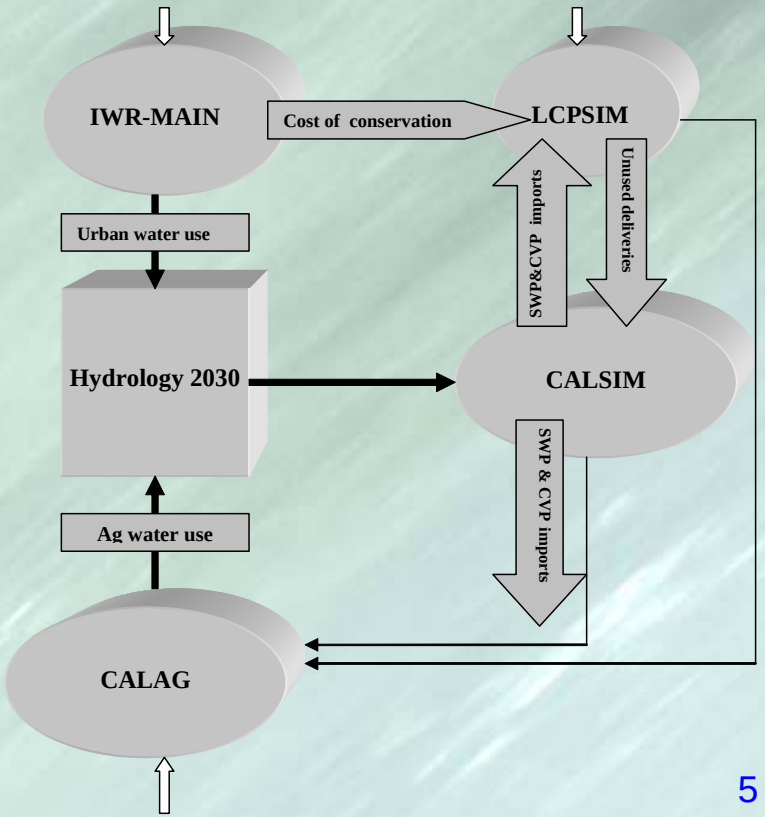
Managing an Uncertain Future

Risk, Uncertainty, and Sustainability

Providing Context from Water Plan Update 2005







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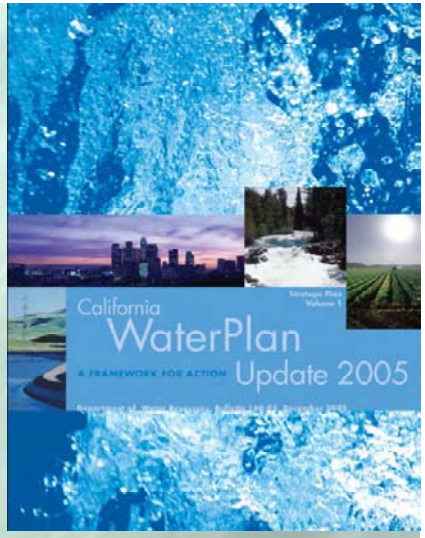
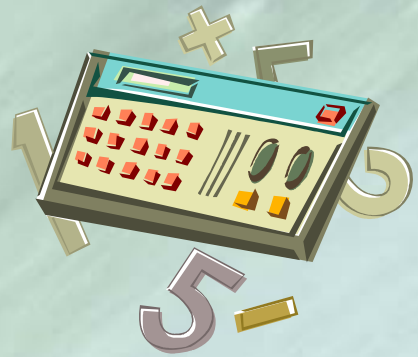
Big Picture for Numbers

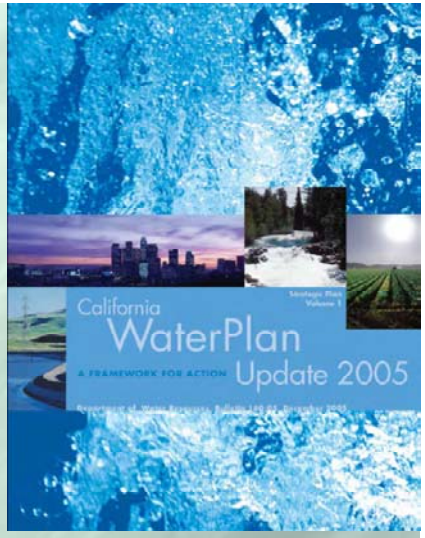


- Enhance shared understanding of California water management system
- Illustrate recent conditions
- Consider what changes are likely between now and 2030
- Identify and test promising responses to expected changes

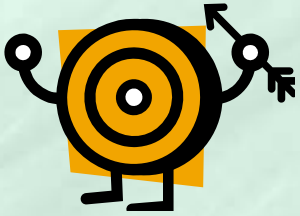


Source: Ken Kirby, 2005 Presentation to the Water Plan Advisory committee

Putting the Views Together



Present



Objectives

Water Portfolios

State of the System

Future

State of the System

Scenarios

Alternative Response Packages

Responses

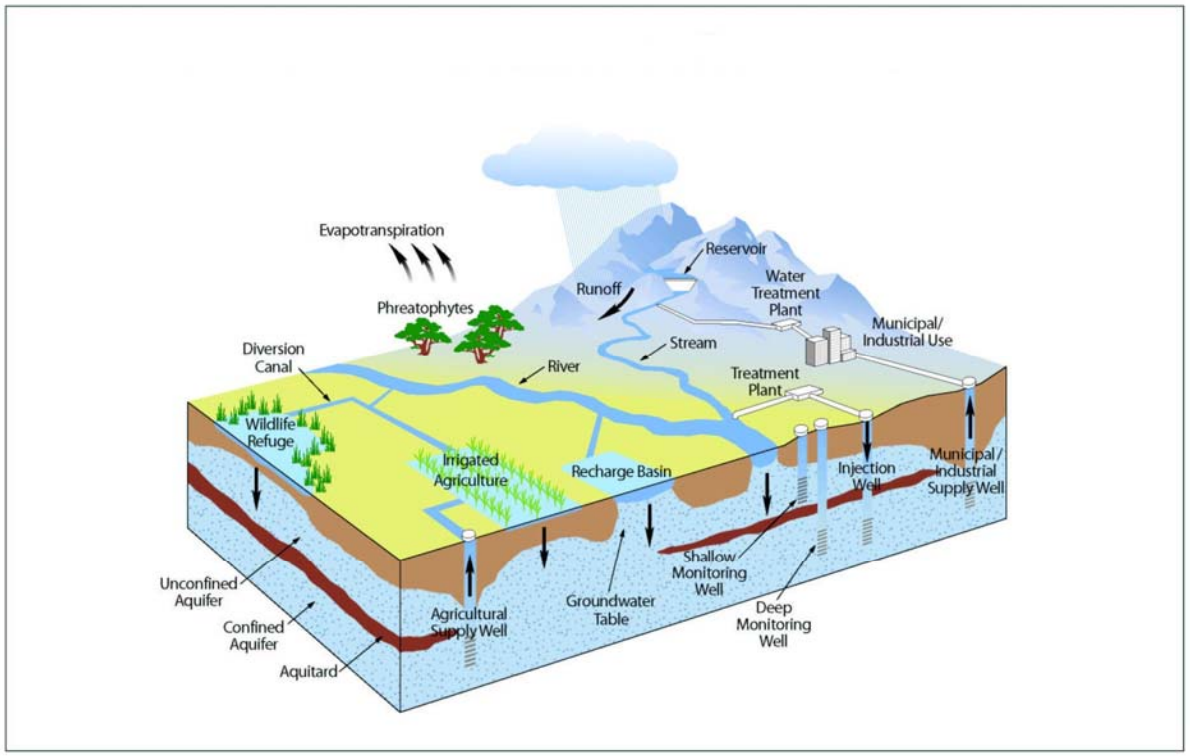
Evaluate

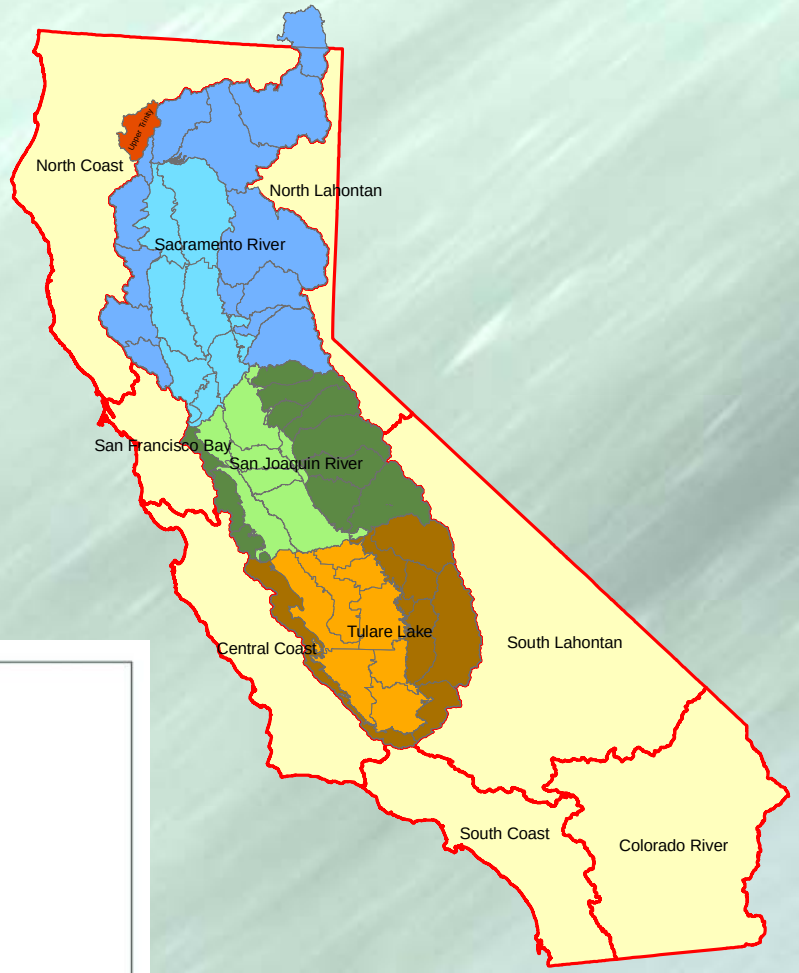
Source: Ken Kirby, 2005 Presentation to the Water Plan Advisory committee

What We've Heard

- Evaluate how factors like climate, future dedication of water to the environment, land use decisions and population affect future water management
- Evaluate how resource management strategies perform under alternative plausible futures
  - Quantify costs, benefits, tradeoffs, and vulnerabilities

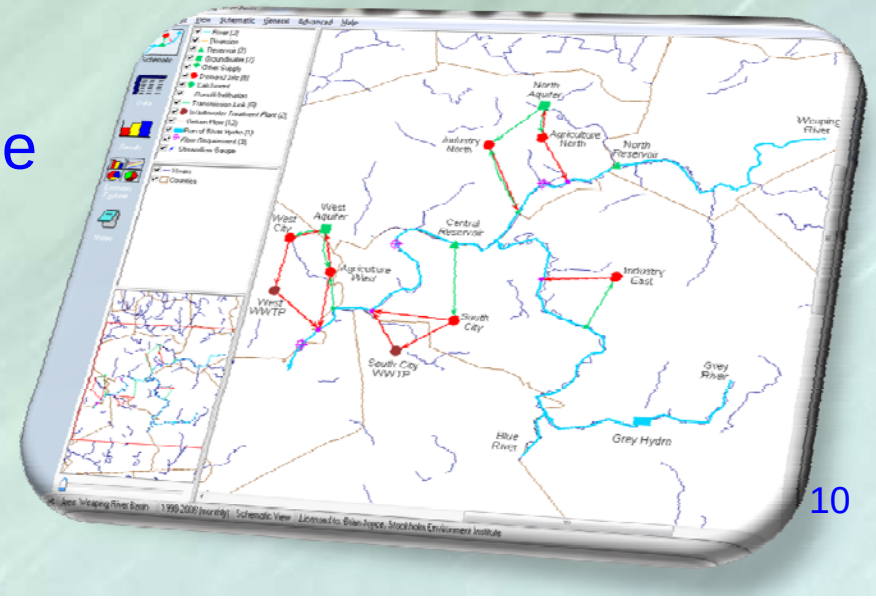
Improvements to analytical tools allow for more comprehensive evaluation





Water Evaluation and Planning System

- Object-oriented, menu-driven, water resources modeling platform
- Developed and maintained by the Stockholm Environment Institute (SEI)
- Integrates watershed hydrology and river basin operations
- Ideally suited for screening analysis and climate change studies



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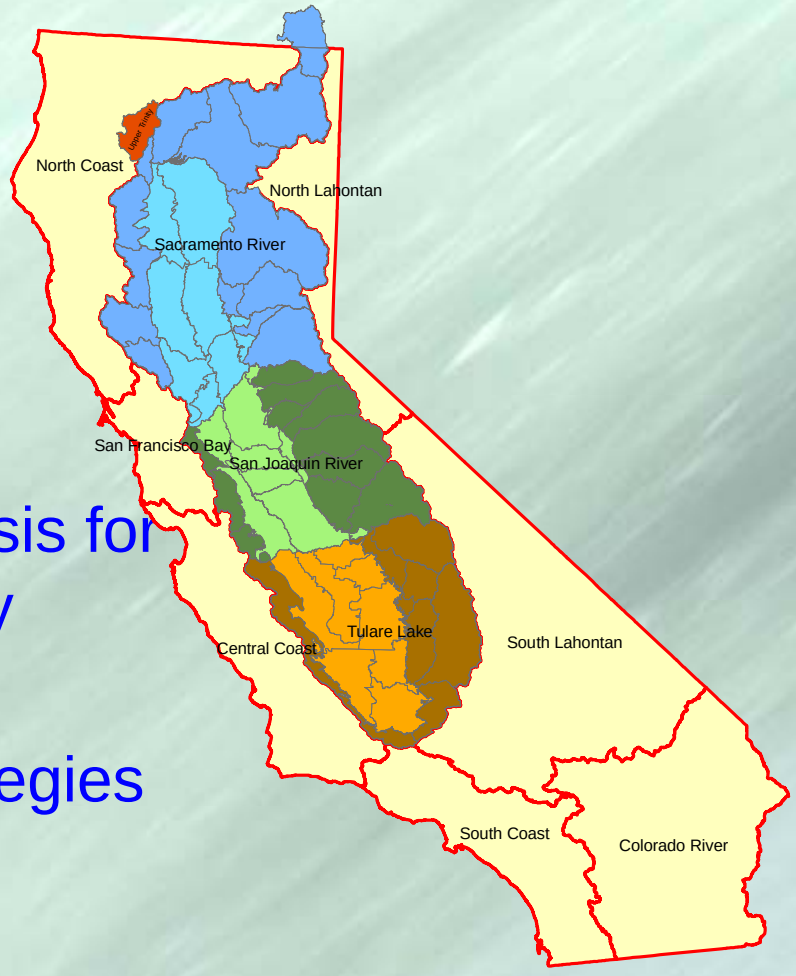
Plan of Study for Update 2013



- Testing comprehensive analysis for three regions in Central Valley
  - o Phased approach
- Will quantify a subset of strategies & strategy benefits
- Representation of regional groundwater and surface water systems
- Use monthly rainfall-runoff, water use, and water system operations data

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Plan of Study Components

Uncertain Factors (X) and Scenarios	Management Strategies (L) and Response Packages
• Population • Employment • Housing density • Climate	Current Management Additional strategies • Agricultural water use efficiency • Urban water use efficiency • New surface storage • Conjunctive management & groundwater storage • Recycled municipal water • Meeting additional flow targets and groundwater recovery goals
Models (R)	**Performance Metrics (M)**
• UPLAN • SWAP • Statewide WEAP Model • Central Valley WEAP Model	• Urban Supply Reliability • Agricultural Supply Reliability • Reliability of instream flow requirements and targets • Groundwater levels

Key Water Policy Questions

- How might demand, supply, and other water management conditions change between now and 2050?
- Which uncertain drivers are the most important?
- How can different water management strategies and response packages improve outcomes?
- What are the key tradeoffs among different strategies?

Goals for Today

- Interactively review results from a water management vulnerability assessment conducted for the Sacramento River, San Joaquin River, and Tulare Lake Hydrologic Regions and how vulnerabilities can be reduced by implementing alternative water management strategies.
- Seek feedback on presenting RDM analysis in the Water Plan Update 2013, discuss limitations, and provide advice for presenting to the Public Advisory Committee.

Agenda

- Evaluation of Central Valley Resource Management Strategies for an Uncertain Future
  - Decision Framework
  - Review outcomes for the Vulnerability Analysis
  - Review outcomes for the Resource Management Strategies
- Discussion
  - What is your impression of the strengths and weakness of the results presented today?
  - How relevant are the results presented to water policy decisions facing California?
  - What advice do you have presenting the results at the Water Plan Plenary meeting?

Water Plan Timeline: Homestretch

We Are Here

Oct. 2009 Plenary Meeting

March 2010 Project Team Meeting

Nov 2010 Launch Update 2013 Outreach

Apr. 2012 Draft Assumptions & Estimates Report

September 2013 Public Review Draft

Mar 2014 Final Update 2013

Jan. 2010

July 2010 Public Workshop

Jan. 2010 Update 2009 AC Meeting

Sept 2010 Tribal Workshop

Jan. 2011

Jan. 2012

Jan. 2013

April 2013 Tribal Water Summit

January 2013 Cal. Water Management Progress Report

Jan. 2014

October 2013 Plenary

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